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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/742,705	12/20/2000	Juha Salokannel	460-009952-US(PAR)	9125

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EXAMINER	
HENNING, MATTHEW T	
ART UNIT	**PAPER NUMBER**
2131	5

DATE MAILED: 05/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/742,705	SALOKANNEL, JUHA	
	Examiner	Art Unit	
	Matthew T Henning	2131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 December 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☒ Claim(s) *1-16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 December 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

This action is in response to the communication filed on December 20, 2000.

DETAILED ACTION

1. Preliminary Amendment A, Paper #2, received 12/20/2000, has been entered into the record.

2. Claims 1-16 have been examined.

Title

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

4. The following title is suggested: *Method and System for Resynchronization of Encryption Keys Upon Hand-off.*

Priority

5. The application has been filed under Title 35 U.S.C §119, claiming priority to Finland application 19992769, filed December 22, 1999.

6. The effective filing date for the subject matter defined in the pending claims in this application is 12/22/1999.

Information Disclosure Statement

7. The information disclosure statement (IDS) submitted on 01/08/2002 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner is considering the information disclosure statement.

Drawings

8. The drawings filed on 12/20/2000 are acceptable for examination proceedings.

Specification

9. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

10. The abstract of the disclosure is objected to because of the use of legal phraseology throughout. The abstract is also objected to because of the recitation of "Fig. 4" on line 23. Correction is required. See MPEP § 608.01(b).

11. The specification is objected to for the following reasons:

Failing to provide section headings as required by Title 37 CFR 1.77(b). Correction is required. See MPEP § 608.01(a).

The spacing of the lines of the specification is such as to make reading and entry of amendments difficult. New application papers with lines double spaced on good quality paper are required in accordance with Title 37 U.S.C. § 1.52(b). See MPEP § 608.01.

Claim Objections

12. The applicant is reminded of the form of claims as specified in MPEP § 608.01(m).

Claims 1-16 objected to because of the following informalities:

The phrase "Claims:" of line 1 should be replaced with "I claim," "What is claimed is:" or the equivalent.

The claims are objected to because the lines are crowded too closely together, making reading and entry of amendments difficult. Substitute claims with lines one and one-half or double spaced on good quality paper are required. See 37 CFR 1.52(b).

Claim 1 Lines 5-6, 10, 12, and 15 have "—" at the beginning of the line. These should be removed.

All claims that recite multiple limitations should be retyped such that each limitation begins on a new line and is indented. See 37 CFR 1.52(i).

Appropriate correction is required.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> *A person shall be entitled to a patent unless –*
>
> *(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.*

14. Claims 1-5, 8 rejected under 35 U.S.C. 102(b) as being anticipated by Dent (U.S. Patent 5,081,679) hereinafter referred to as Dent.

15. Claim 1 recites defining a set of keys and then selecting a key, from the set, for use in encrypting information transmitted between an access point and a mobile terminal. Dent disclosed creating keys in the form of a key stream (See Dent Col. 5 Lines 51-57) and using the generated keys to encrypt the communications between the Base Station (BS) and the Mobile Station (MS) (See Dent Col. 5 Lines 57-66). It was inherent that a key was selected from the stream in order to encrypt the communications between the BS and the MS.

Claim 1 further recites transmitting from the access point, at intervals, data about the encryption key. Dent disclosed transmission of key synchronization information from the BS to the MS (See Dent Col. 6 Lines 8-12).

Claim 1 further recites setting up a transmission connection between the mobile terminal and the first access point. In order for there to have been communication

between the BS and the MS (See Dent Col. 6 Lines 5-8), it was inherent that a connection was first established between the two stations.

Claim 1 also recites performing a handover to a second access point, involving setting up the connection between the second access point and the mobile terminal and also transmitting information, about the encryption key in the second access point, to the mobile terminal. Dent disclosed performing a handoff from a first BS to a second BS (See Dent Col. 6 Lines 12-15) and the second BS transmitting key synchronization information to the MS (See Dent Col. 6 Lines 15-30). Dent also disclosed setting up a connection between the MS and the BS (See Dent Col. 6 Lines 30-39).

16. Regarding claim 2, Dent disclosed generating the keys as a function of a block counter and a secret key (See Dent Claims 32-33). Dent further disclosed that the synchronization information sent to the mobile station was the current bits of the base station block counter, which correspond to the current key (See Dent Claim 34).

17. Regarding claim 3, Dent disclosed a frame counter, which is used to update the cipher code (See Dent Col. 10 Lines 14-17).

18. Regarding claim 4, Dent disclosed a speech coder frame (See Dent Col. 9 Line 20). It is inherent that the speech coder frames of the second BS be sent to the mobile stations connected to the second BS in order for each MS to receive its corresponding speech communications.

19. Regarding claim 5, Dent disclosed creating keys in the form of a key stream in both the BS and the MS (See Dent Col. 5 Lines 51-57) for use in encrypting the communications in both directions between the BS and the MS. It was inherent that

these keys were stored at both the BS and the MS, at least temporarily until they were used, in order for the encryption algorithm to have used the keys to encrypt and decrypt the communications.

20. Regarding claim 8, Dent disclosed that the first BS sent a handoff command to a second BS, at which point the second BS sent key synchronization information to the MS (See Dent Col. 6 Lines 12-22).

21. Regarding claims 9-13, and 16, Dent disclosed both the method and the system used to reject claims 1-5, and 8 (See Dent Claims). Therefore, Claims 9-13, and 16 are rejected for the reasons stated above.

Claim Rejections - 35 USC § 103

22. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> *(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.*

23. Claims 6 and 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Dent as applied to claim 1 and 9 respectively above, and further in view of Kojima et al. (U.S. Patent Number 5,323,446) hereinafter referred to as Kojima.

Dent disclosed handing off a MS from a first BS to a second BS (See Dent Col. 6 Lines 12-15). However, Dent failed to disclose that the MS could initiate the handoff. Dent also disclosed that during this handoff, the voice channel is seized for authentication purposes and no longer sends voice data (See Dent Col. 12 Paragraph 4).

Kojima teaches that if the mobile terminal requests the handoff to both the old and the new base station, then the handoff can ensure transparency to the data signals (See Kojima Summery of the Invention).

It would have been obvious to the ordinary person skilled in the art at the time of invention to employ the teachings of Kojima in the invention of Dent by having the mobile terminal send handoff requests to both the old and new base stations. This would have been obvious because one skilled in the art would have been motivated to preserve data integrity in the communication.

It would have been inherent in the combination of Dent and Kojima that the new base station sent its synchronization information to the mobile terminal at the time of handoff request. This would be inherent in order for the mobile terminal to communicate securely with the new base station.

Claims 7 and 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Dent as applied to claim 1 and 9 respectively above, and further in view of Gilhousen et al. (U.S. Patent Number 5,101,501) hereinafter referred to as Gilhousen.

Dent disclosed handing off a MS from a first BS to a second BS (See Dent Col. 6 Lines 12-15), but Dent failed to disclose that the MS could initiate the handoff.

However, Dent disclosed the handoff signal originating at the old base terminal (See Dent Col. 6 Lines 12-15).

Gilhousen teaches that by providing the mobile unit with the ability to detect the need for handoff, the mobile unit can become more aware of its possible communication paths much sooner and with less effort than if the information was relayed from its base station, which allows the mobile unit to find the cell site with the strongest signal and request handoff to that cell (See Gilhousen Col. 8 Paragraphs 4-5).

It would have been obvious to the ordinary person skilled in the art at the time of invention to employ the teachings of Gilhousen to the invention of Dent by having the mobile unit detect the need for a handoff and then request the handoff. This would have been obvious because the ordinary person skilled in the art would have been motivated to provide the mobile terminal with the strongest signal available.

It would have been inherent in the combination of Dent and Gilhousen that the new base station sent its synchronization information to the mobile terminal at the time of handoff request. This would be inherent in order for the mobile terminal to communicate securely with the new base station

Conclusion

24. Claims 1-16 have been rejected.

25. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Dent (U.S. Patent Number 5,060,266) disclosed a continuous cipher synchronization method for cellular communication systems.

b. Crisler et al. (U.S. Patent Number 5,179,559) disclosed a method of handoff involving measuring ranges of communication units.

c. Malek et al. (U.S. Patent Number 5,243,653) disclosed a method for continuous synchronous encryption and decryption during handoff.

d. Isrealsson (U.S. Patent Number 5,293,643) disclosed a method for handoff involving measuring signal strengths in the base stations.

e. Dahlin et al. (U.S. Patent Number 5,293,423) disclosed a synchronization method during handoff for ciphered transmission.

f. Raith et al. (U.S. Patent Number 5,546,464) disclosed a method of selective resynchronization during handoff depending on synchronization of base stations.

g. Norefors et al. (U.S. Patent Number 6,370,380) disclosed a secure method of handoff.

h. Haartsen (U.S. Patent Number 5,598,459) disclosed methods of authentication and handoff for personal radio communications.

i. Chang et al. ("Token Based Authentication for Handover Security") disclosed a handoff method using tokens to thwart potential attackers from taking over the transmission.

j. Tripathi et al. ("Handoff in Cellular Systems") disclosed different methods of handoff, their uses, and their advantages and disadvantages.

26. Any inquiry concerning this communication should be directed to Matthew Henning whose telephone number is (703) 305-0713. The examiner can normally be reached Monday-Friday from 9am to 4pm, EST.

If attempts to reach examiner by telephone are unsuccessful, the examiner's acting supervisor, Ayaz Sheikh, can be reached at (703) 305-9648. The fax phone number for this group is (703) 305-3718.

Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Matthew Henning
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